

REMARKS

Claims 2 and 13 have been canceled. Claims 1, 3, 5, 12, 14 through 17, and 20 have been amended. Claims 1, 3 through 12, and 14 through 20 remain in the application.

Claims 1, 5, 6, 10 through 12, 14, 17, and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by either Miller (U.S. Patent No. 6,205,868) or Lawson (U.S. Patent No. 6,508,114). Applicants respectively traverse this rejection.

U.S. Patent No. 6,205,868 to Miller discloses a Hall-effect seat belt tension sensor. A seat belt tension measurement system 10 for a seat belt 12 includes a base 14 having first and second opposed guide pin blocks, 16 and 18 respectively, depending therefrom. A plurality of spaced upper guide pins 20 and a plurality of spaced lower guide pins 22 extend between and are secured to the opposed guide pin blocks 16 and 18. The upper guide pins 20 lie in spaced relation to the lower guide pins 22 to allow the seatbelt 12 to be disposed therebetween. A plunger housing 30 having an orifice 32 and a plurality of slots 34 disposed therein is secured to the base 14 between the lower guide pins 22. The orifice 32 of the plunger housing 30 is shaped to accept a plunger 40 therein. The plunger 40 has an upper portion 42 shaped to allow the seatbelt 12 to slide across the plunger 40 with minimal friction. The plunger 40 further has a plurality of detents 44 depending therefrom that engage the plurality of detent slots 34 in the plunger housing 30 to secure the plunger 40 within the housing 30. A plurality of springs 46 are disposed between the plunger 40 and the base 14. The springs 46 bias the plunger 40 upwardly, towards the upper guide pins 20. A permanent magnet 50 is secured at a point to the plunger 40. A Hall effect sensor 52 is secured to the base 14 at a point wherein the magnet 50 is moved in proximity to the sensor 52 as the plunger 40 is biased downwardly against the spring force by the seatbelt 12, which is routed over the upper 20 and lower 22 guide pins and over the plunger 40. Miller does not disclose a movable actuator disposed in a housing and cooperable with belt webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator,

whereby the actuator moves as the springs are deflected to move at least one magnet relative to a Hall effect sensor to indicate a tension level in a seat-restraint system.

U.S. Patent No. 6,508,114 to Lawson discloses a webbing tension sensor. A seat belt tension sensing unit 10 includes a seat belt webbing 140 which passes through an opening in a cover 130 that protects and encloses unit 10. A base 120 provides a stable platform for attaching a hinge arm 150 and a spring 160. One end of the base 120 and cover 130 are clamped together on the webbing 140 to keep the unit in place. On the opposite end, the webbing 140 is free to move. Hinge arm 150 includes two pivot pins 210 which are resiliently held in place by pivot guides 190. Hinge arm 150 is free to rotate around pivot pin 210 which allows hinge arm free end 230 to move in response to variations in the tension within seat belt webbing 140. Hinge arm free end 230 is elastically biased towards seat belt webbing 140 by spring 160. A sensor, preferably a hall effect sensor 170, is used to detect movement of hinge arm free end 230. The sensor preferably is mounted immovably with respect to the base 120 or on base 120 or on cover 130. A permanent magnet 200 is embedded or otherwise attached to one end of hinge arm free end 230. Lawson does not disclose a movable actuator disposed in a housing and cooperable with belt webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move at least one magnet relative to a Hall effect sensor to indicate a tension level in a seat restraint system.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a pass through seat restraint tension sensing assembly for a seat restraint system in a vehicle including a housing for allowing belt webbing of the seat restraint system to pass therethrough. The pass through seat restraint tension sensing assembly also includes a plurality of springs disposed in the housing and at least one magnet disposed in the housing. The pass through seat restraint tension sensing assembly includes a Hall effect sensor disposed in the housing and cooperable with the at least one magnet. The pass through seat restraint tension sensing assembly further includes a

movable actuator disposed in the housing and cooperable with the belt webbing and the springs. The springs are arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move the at least one magnet relative to the Hall effect sensor to indicate a tension level in the seat restraint system. Claim 12 has been amended similar to claim 1 and includes other features of the present invention.

A rejection grounded on anticipation under 35 U.S.C. § 102 is proper only where the subject matter claimed is identically disclosed or described in a reference. In other words, anticipation requires the presence of a single prior art reference which discloses each and every element of the claimed invention arranged as in the claim. In re Arkley, 455 F.2d 586, 172 U.S.P.Q. 524 (C.C.P.A. 1972); Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984).

None of the references cited disclose or anticipate the claimed invention of claims 1 and 12. Specifically, Miller '868 merely discloses a Hall-effect seat belt tension sensor in which a plunger housing is shaped to accept a plunger therein having an upper portion shaped to allow a seatbelt to slide across, a plurality of detents depending therefrom that engage a plurality of detent slots in the plunger housing, and a plurality of springs disposed between the plunger and a base. Miller '868 lacks a movable actuator disposed in a housing and cooperable with belt webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move at least one magnet relative to a Hall effect sensor to indicate a tension level in a seat restraint system. In Miller '868, a plunger 40 has a plurality of detents 44 depending therefrom that engage a plurality of detent slots 34 in a plunger housing 30 to secure the plunger 40 within the housing 30 and a plurality of springs 46 disposed between the plunger 40 and a base 14. Lawson '114 merely discloses a webbing tension sensor in which a hinge arm is free to rotate around a pivot pin which allows a hinge arm free end

to move in response to variations in tension within seat belt webbing and the hinge arm free end is elastically biased towards seat belt webbing by a spring. Lawson '114 lacks a movable actuator disposed in a housing and cooperable with belt webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move at least one magnet relative to a Hall effect sensor to indicate a tension level in a seat restraint system. In Lawson '114, a hinge arm 150 is free to rotate around pivot pin 210 and has a hinge arm free end 230 elastically biased towards seat belt webbing 140 by a spring 160. Each of the references fails to disclose the combination of a pass through seat restraint tension sensing assembly including a movable actuator disposed in a housing and cooperable with belt webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move at least one magnet relative to a Hall effect sensor to indicate a tension level in a seat restraint system as claimed by Applicants. Therefore, it is respectfully submitted that claims 1 and 12 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 102(e).

Claims 2 through 4, 7, 13, 15, 16, 18, and 20 were rejected under 35 U.S.C. § 103 as being unpatentable over either Miller '868 or Lawson '114. Applicants respectfully traverse this rejection.

As to claim 20, claim 20, as amended, clarifies the invention claimed as a seat restraint system for a vehicle including a seat restraint webbing, a housing for allowing the seat restraint webbing to pass therethrough, a plurality of springs disposed in the housing, and a plurality of magnets disposed in the housing. The seat restraint system also includes a Hall effect sensor disposed in the housing and cooperable with the magnets. The seat restraint system further includes a movable actuator disposed in the housing and cooperable with the seat restraint webbing and the springs. The springs are arranged in an offset pattern to prevent tipping of the

actuator, whereby the actuator moves as the springs are deflected to move the magnets relative to the Hall-effect sensor to indicate a tension level in the seat restraint system.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

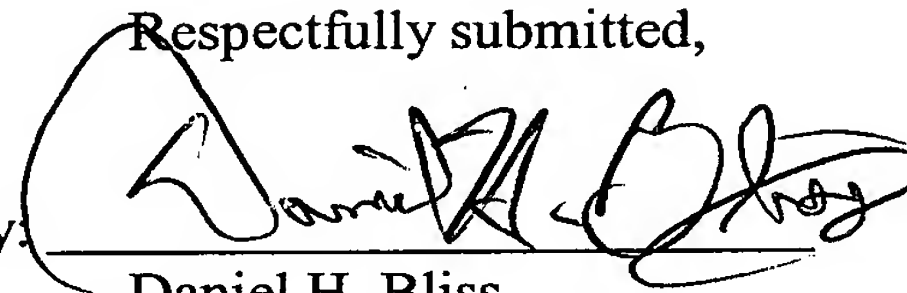
None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 20. Specifically, Miller ‘868 merely discloses a Hall-effect seat belt tension sensor in which a plunger housing is shaped to accept a plunger therein having an upper portion shaped to allow a seatbelt to slide across, a plurality of detents depending therefrom that engage a plurality of detent slots in the plunger housing, and a plurality of springs disposed between the plunger and a base. Miller ‘868 lacks a movable actuator disposed in a housing and cooperable with seat restraint webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are

deflected to move a plurality of magnets relative to a Hall effect sensor to indicate a tension level in a seat restraint system. In Miller '868, a plunger 40 has a plurality of detents 44 depending therefrom that engage a plurality of detent slots 34 in a plunger housing 30 to secure the plunger 40 within the housing 30 and a plurality of springs 46 disposed between the plunger 40 and a base 14. Lawson '114 merely discloses a webbing tension sensor in which a hinge arm is free to rotate around a pivot pin which allows a hinge arm free end to move in response to variations in tension within seat belt webbing and the hinge arm free end is elastically biased towards seat belt webbing by a spring. Lawson '114 lacks a movable actuator disposed in a housing and cooperable with seat restraint webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move a plurality of magnets relative to a Hall effect sensor to indicate a tension level in a seat restraint system. In Lawson '114, a hinge arm 150 is free to rotate around pivot pin 210 and has a hinge arm free end 230 elastically biased towards seat belt webbing 140 by a spring 160. There is no suggestion or motivation for modifying either Miller '868 or Lawson '114.

The references, if combinable, fail to teach or suggest the combination of a seat restraint system for a vehicle including a movable actuator disposed in a housing and cooperable with seat restraint webbing and a plurality of springs arranged in an offset pattern to prevent tipping of the actuator, whereby the actuator moves as the springs are deflected to move a plurality of magnets relative to a Hall effect sensor to indicate a tension level in the seat restraint system as claimed by Applicants. The claimed invention is novel and unobvious because the seat restraint system includes a pass through seat restraint tension sensing assembly that has a balanced force relationship provided by offset springs that prevents internal tipping of an actuator. Therefore, it is respectfully submitted that claim 20 is allowable over the rejection under 35 U.S.C. § 103.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejection of claims 2 through 4, 7, 13, 15, 16, 18, and 20 is improper. Therefore, it is respectfully submitted that claims 2 through 4, 7, 13, 15, 16, 18, and 20 are allowable over the rejection under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,
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